

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US03/40137

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : B60U 7/08, 7/20, B60R 21/13
US CL : 296/107.01, 107.08, 107.09, 107.17, 203.01

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 296/107.01, 107.08, 107.09, 107.17, 203.01, 193.02, 193.04

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,641,193 A (ZEPNIK et al.) 24 June 1997	1-11
—		12
Y		
X	US 6,352,298 B (HAYASHI et al.) 5 March 2002	13
Y	US 6,293,605 B (NEUBRAND) 25 September 2001	12
A	US 6,443,517 B (JUST et al.) 3 September 2002	1-14
A	US 6,431,637 B (MAASS) 13 August 2002	1-14
A	US 6,227,604 B (GRACE) 8 May 2001	1-14
A	US 5,881,458 A (WOLF et al.) 16 March 1999	1-14
A	US 4,832,397 A (SCADUTO) 23 May 1989	1-14

Further documents are listed in the continuation of Box C. See patent family annex.

- * Special categories of cited documents:
- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier application or patent published on or after the international filing date
- *J* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed
- *V* document of particular relevance; the claimed invention cannot be considered novel or enable to be considered to involve an inventive step when the document is taken alone
- *W* document of particular relevance; the claimed invention cannot be considered new if the invention disclosed therein is contained in the document in combination with one or more other such documents, such combination being obvious to a person skilled in the art
- *E&* document member of the same patent family

Date of the actual completion of the international search

28 April 2004 (28.04.2004)

Date of mailing of the international search report

24 JUN 2004

Name and mailing address of the ISA/US

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INTERNATIONAL SEARCH REPORT

PCT/US03/40137

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4,712,828 A (ALBRECHT) 15 December 1987	1-14
A	US 4,700,982 A (KURAOKA et al.) 20 October 1987	1-14
A	US 4,695,089 A (FUKUTOMI et al.) 22 September 1987	1-14
A	US 4,346,930 A (NORTHEY) 31 August 1982	1-14

Form PCT/ISA/210 (second sheet) (July 1998)